Material Issue 14

Protection of Environment

Management of Priority Issues

Reason for being a priority issue	Our businesses are supported by a sound global environment. We believe that reducing the burden from our business activities on the global environment and local communities is an important corporate responsibility.
Vision over the medium to long term	Under “ECO VISION 2050,” we aim to become a leading environmentally friendly company in the pharmaceutical industry, and will strive to maintain a rich global environment for future generations so that people can have a healthy and sound society.
Indicators	Achievement of 2030 goals • Achievement of a decarbonized society • Achievement of a water-recycling society • Achievement of a resource-recycling society
Major initiatives	• Reduce greenhouse gas emissions and increase share of renewable energy in total electricity consumption • Reduce use of water resources • Reduce the final landfill rate of our industrial waste

Environmental Management

Global Environment Policy and Environmental Vision

ONO has established a Global Environment Policy as a guideline for our environmental activities. We formulated our medium- and long-term environmental vision for 2050, the “Environment Challenging Ono Vision (ECO VISION 2050),” based on this policy. We recognize our corporate social responsibility for the environment and engage in activities to realize an abundant global environment by prioritizing the environment in all business areas.

Web Global Environment Policy and Medium- and Long-term Environmental Vision
https://sustainability.ono-pharma.com/en/themes/106

Targets (Medium- and Long-term Targets and Annual Target) and Results

Key priority	Indicators	Medium- and long-term targets	Target in FY2021	FY2021 results and progress
Realization of a decarbonized society	Greenhouse gas emissions (Scopes 1 + 2) (Market-based CO_2 emissions[1])	55% reduction by FY2030 and reduction to zero by FY2050 <Compared to FY2017>	Reduce by 16.8% or more from FY2017	23.6 kt-CO_2 (Reduce by 20.9% from FY2017[2])
	Greenhouse gas emissions (Scope 3)	30% reduction by FY2030 and 60% reduction by FY2050 <Compared to FY2017>	Reduce by 6.9% from FY2017[3]	49.8 kt-CO_2 (Reduce by 33.7% from FY2017[3])
	Green energy use rate in all electricity consumption	Increase to 55% or more by FY2030 and increase to 100% by FY2050	16.8% or more	17.0%
Realization of a water recycling society	Water resource consumption (water intake)	15% reduction per production volume unit by FY2030 <Compared to FY2017>	Less than or equal to the previous year’s level (FY2020: 245.6 thousand m^3)	219.4 thousand m^3 (Increase by 25.6% per production volume unit from FY2017)
Realization of a resource recycling society	Final landfill rate of industrial waste	1% or less every year[4]	1% or less	0.04%
	Industrial waste volume	15% reduction per production volume unit by FY2030 <Compared to FY2017>	Less than or equal to the previous year’s level (FY2020: 502.7 t)	479.1 t (Increase by 20.3% per production volume unit from FY2017)
	——	Promote reductions in the environmental impact in business activities	——	Reduce environmental impact by changing product package materials and packaging form, etc.

1 Market-basis greenhouse gas emission volumes are calculated based on emissions coefficients published by each electric power company.
2 Greenhouse gas emissions (Scopes 1 + 2) do not include CO_2 offsets from voluntary credits (carbon neutral city gas purchases). If these voluntary credits are included, greenhouse gas emissions (Scopes 1 + 2) would be reduced by 22.9% compared to FY2017.
3 Scope 3 is calculated based on FY2020 emissions since the data of our major suppliers and pharmaceutical wholesalers for FY2021 had not yet been published at the time we made our calculations.
4 ONO’s ZERO Emission standard is that the percentage of non-recycling (landfill and simple incineration) is 1% or less of the total amount.

Medium- and Long-term Targets and Fiscal Year Targets

In FY2019, we set three priority items, Realization of a decarbonized society, Realization of a water recycling society, and Realization of a resource recycling society, and set specific medium- and long-term targets for greenhouse gases, water, and resource recycling, to achieve “ECO VISION 2050.” Also, each year we set annual targets based on progress. We are also promoting measures to conserve biodiversity, in consideration of society’s demands.

Promotion of Environmental Management

We have an environmental management system where the President and Representative Director has overall responsibility. Under the President and Representative Director, the Corporate Executive Officer / Head of Corporate Communications, who is the chairperson of the CSR Committee, actually handles company-wide environmental management. The Environmental Management Committee, which consists of the responsible members for environmental management in each department, engages in both identifying the actual current situation and in promoting management of the system and the CSR Promotion Section handles the operation of this Committee. In particular, regarding the three priority items of Realization of a decarbonized society, Realization of a water recycling society, and Realization of a resource recycling society, the Environmental Management Committee’s subcommittees (the climate change subcommittee, water recycling subcommittee, and resource recycling subcommittee) investigate initiatives to reduce the environmental burden, and establishes targets for each site to achieve for the fiscal year, and handle promotion.
Each of the manufacturing sites and research institutes with a large environmental burden has a subcommittee. The manufacturing sites have ISO 14001 certification and work to reduce their environmental impact. The progress of these efforts is reported at least once a year at the Executive Committee, which is chaired by the President and Representative Director.
In addition, to reduce environmental risks, employees involved in operations that could have an impact on the environment receive the necessary training on environmental management. We also have a structure to minimize environmental impact by conducting drills and providing on-site training for emergency response to accidents and by formulating various manuals.

Web Environmental Management System and Status of Acquisition of ISO 14001 Certification
https://sustainability.ono-pharma.com/en/themes/107#957

Achieving a Decarbonized Society

Medium- and Long-term Goals for Achieving a Decarbonized Society

One of our goals to realize a decarbonized society, Reduction of greenhouse gas emissions (Scopes 1 + 2) to zero by FY2050 is categorized as the most aggressive goal for the “1.5°C target” by the international initiative “Science Based Targets initiative (SBTi).” To achieve this challenging goal, we are promoting various initiatives throughout the company. Regarding the energy we use, we are increasing the use of renewable energy in line with RE100 (joined in June 2020).

SCIENCE BASED TARGETS
DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

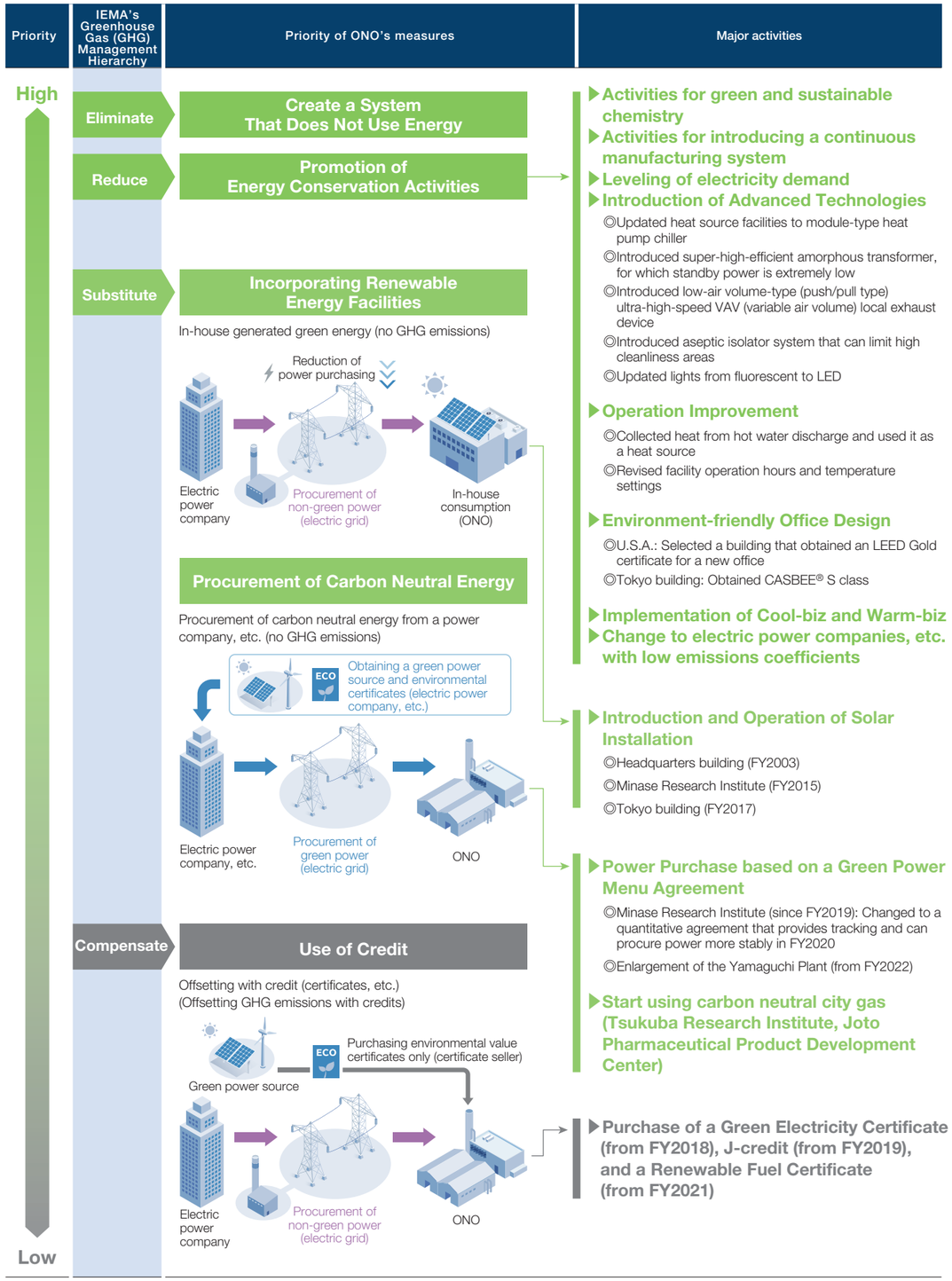
RE100
CLIMATE GROUP | CDP

International initiatives: the Science Based Targets initiative and RE100

Revised Priority of Measures in Consideration of the Latest Market Trends and Future Outlook

In FY2020, we again revised our priority on reducing greenhouse gas emissions based on the current energy market trends, costs, emission factor predictions, and other factors. We used the Institute of Environmental Management and Assessment (IEMA)’s greenhouse gas (GHG) management hierarchy, as a reference and gave Procurement of Carbon-Free Energy a higher priority than Use of Credits, for the following priority of measures: Promotion of Energy Conservation Activities > Incorporating Renewable Energy Facilities > Procurement of Carbon-Free Energy > Use of Credit.
We will implement these revisions based on changes to the business environment and the progress of our activities as needed. Going forward, we will accelerate our activities to become a leading environmental company in the pharmaceutical industry by 2050, and to achieve a decarbonized society in addition to promoting the realization of a healthy and sound society through the discovery and development of innovative pharmaceutical products for our future in 2050.

Priority of ONO's Measures for Reducing Greenhouse Gas Emissions and Major Activities



Source: Prepared by ONO based on materials from ENECHANGE Ltd.

Disclosure of Climate Change-Related Information (Disclosure based on TCFD)

ONO has expressed its support for the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) in October 2019. The TCFD is a task force established by the Financial Stability Board (FSB) to promote the disclosure and understanding of the financial impact of climate change on companies and published recommendations on methods of information disclosure in June 2017. Based on the recommendations, we will evaluate and manage climate change-related risks and opportunities and promote appropriate information disclosure.

TCFD TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

Task Force on Climate-related Financial Disclosures (TCFD)

Governance of Climate Change-Related Activities

We appoint the president, representative director, and CEO as the highest responsible person on management of environmental

Risks Related to Climate Change and the Effect on Finance and Business

Factor		Value chain	Risk and impact		Financial impact*	Management approach
Society aiming for below 1.5°C	**Regulatory risk**	ONO	Increased carbon tax burden	Our burden of carbon tax levied on greenhouse gas emissions may increase due to the possible tightening of climate change-related regulations.	¥1.9 billion	Mitigation • Achieve the greenhouse gas emissions reduction target (Scope 1+2) in line with the 1.5°C target • Implement energy saving and green energy investment plans to achieve the target
		Suppliers	Carbon tax passed on to procurement prices	Suppliers' burden of the carbon tax levied on greenhouse gas emissions may increase due to the possible tightening of climate change-related regulations, and suppliers may pass on the carbon tax burden to us through higher procurement prices, potentially resulting in an increase in our materials costs.	¥0.6 billion	Mitigation • Achieve greenhouse gas emissions reduction target (Scope 3) • Strengthen engagement with suppliers to achieve the target
If the temperature rises by 4°C	**Physical risk**	ONO, manufacturing contractors, suppliers	Flood risk (acute)	Acute damage (flood) risk from typhoons, etc. may increase, and an interruption of operations caused by damage to production facilities or damage to storage facilities may potentially result in a decrease in revenue.	¥2 billion	Adaptation • Introduce emergency power generators at main bases and conduct periodic maintenance • Integrate climate risks into enterprise risk management (ERM) • Ensure cooperation with suppliers (e.g., consider floodproofing measures at product storage locations and at suppliers. Elevated storage in recognized flood risk areas will be addressed during 2022). • Secure multiple suppliers • Consider the impact of flood due to climate change in the business partner selection process
			Water shortage risk (chronic)	Since sufficient inventory is maintained, it is not likely at present that water-use restrictions due to long-term depletion of water resources will cause an interruption of our operations, resulting in a decrease in revenue.	¥0 billion	Adaptation • Secure proper inventory to avoid loss of opportunities • Maintain a cooperation system with business partners

* Financial impact: The maximum value during the period from 2020 to 2030 in the 1.5°C or 4°C scenario (showing cumulative value to regulatory risk)

Mitigation: Measures to reduce emissions of greenhouse gases that cause climate change

Adaptation: Measures to prevent or mitigate damage caused by the effects of climate change that have already occurred (or are expected to occur in the future)

Opportunities Related to Climate Change and the Effect on Finance and Business

Factor		Value chain	Risk and impact		Financial impact[1]	Management approach
Society aiming for below 1.5°C	**Opportunity from resource efficiency**	ONO	High-efficiency pharmaceutical manufacturing process	The introduction of process design that takes green and sustainable chemistry[2] into account, and high-efficiency pharmaceutical process technologies, such as continuous manufacturing, can provide opportunities to reduce energy and raw material costs.	¥2.3 billion	• Define indicators for assessing resource efficiency • Develop systems
If the temperature rises by 4°C	**Business opportunity**	Customers	Preventive/ treatment products	If disease trends change due to global warming, demand for existing drugs (for melanoma, etc.) may increase, or the development and sales of new drugs may have a favorable impact on revenue.	¥0.5 billion	• Additional indications for existing pharmaceuticals • Enhance the new compound library • Make use of open innovation, etc.
Society aiming for below 1.5°C	**Reputation opportunity**	Investors, customers, recruitment market	Corporate value improvement	It is possible that our efforts to tackle climate change will help us earn customer trust, retain employees, improve our reputation in the recruitment market, and improve ESG investors' evaluation of our performance, thus contributing to the creation of corporate value.	(Contributing to the creation of corporate value)	• Appropriately disclose the results of activities undertaken to the public

1 Financial impact: The maximum value during the period from 2020 to 2030 in the 1.5°C or 4°C scenario (opportunities from resource efficiency are cumulative values)
2 Green Sustainable Chemistry: A concept that aims to reduce environmental impacts throughout the life cycle of chemical substances in order to realize a sustainable society

issues, and below him, a corporate officer to be in charge of environmental issues. The corporate officer in charge of environment issues concurrently chairs the Environmental Management Committee and the CSR Committee, and is also a member of the Management Committee. The Environmental Management Committee discusses climate change issues at least once a quarter, and reports and discusses the results of its activities to the CSR Committee and the Executive Committee at least once every six months. Furthermore, the results are reported to the Board of Directors at least once a year and shared with all directors.
In FY2019, we established a TCFD Study Working Group with the corporate officer in charge of the environment as the person responsible, and it considers issues related to the identification and evaluates the financial impact of climate change-related risks and opportunities and responses to them, and it reviews the identified risks and opportunities every year. The TCFD Working Group, is composed of the heads of major relevant departments (Finance and Corporate Strategy & Planning) and the head of the Risk Management Office so climate-related issues can be integrated into our business strategy.
Also, we participate in the TCFD Consortium, which is a platform for companies and financial institutions that support the TCFD recommendations to discuss effective corporate disclosure and appropriate initiatives. In March, FY2021, we held an ESG briefing for institutional investors, which we have done since FY2019 and received various comments and questions.

TCFD Consortium

Strategy (Analysis and evaluation of risks and opportunities related to climate change)

Climate change-related risks and opportunities were analyzed and evaluated from the perspectives of the short term (up to 3 years), medium term (3 to 10 years) and long term (10 to 30 years) using the 1.5°C and 4°C scenarios, under the leadership of the TCFD Working Group. Continuing from FY2020, in FY2021, we reviewed the amount of financial impact of physical risks[1] based on changes in our product structure, suppliers, etc. and checked our responses to identified risks. We also confirmed that there is not a high risk for climate change for product inventory overseas or inventory for clinical trials. Also, the amount of financial impact of transition risks[2] was not revised since there were no specific changes in assumptions of calculation. Our analysis revealed no financially significant risks in either the 1.5°C or 4°C scenarios. We will continue to check trends in the international community and get an understanding of the impact of risks and opportunities that may have a relatively material financial impact.

1 Physical risks: Acute or chronic damage due to decarbonization policy that has not been clearly defined and due to disasters, etc. caused by climate change.
2 Transition risks: Risks resulting from enhancement of decarbonization policy on a global scale (e.g. climate change policy/regulation, technology development, market trends, changes in evaluation of the market)

Risk and Opportunity Management

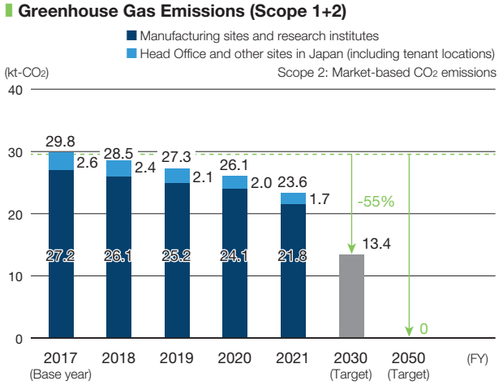
When identifying risks and opportunities, the timing, probability of occurrence and the extent of the consequences are analyzed for each risk and opportunity, details of responses to them are evaluated, and then overall priorities are determined. We prioritize and identify risks and opportunities with a large impact on our business or a high probability of occurrence, as well as with measures that are very cost effective, and the Environmental Management Committee manages progress. The Company-Wide Risk Management Committee considers measures to alleviate and respond to the identified risks, and proposes them to the Management Meeting for approval. The measures approved by the Management Meeting are implemented by the responsible people at manufacturing sites, research institutes, etc. and the risks are thus managed in a comprehensive manner. The financial impacts of risks and opportunities, and measures to respond to them, are reviewed each year, and the content of discussions is supervised by the president, representative director, and CEO through the environment management system (described in "Governance," above).

Indicators and Targets

Aiming to minimize risks and maximize opportunities associated with climate change, we are working to achieve our greenhouse gas emission reduction targets based on our medium- to long-term environmental vision. We are participating in the "Fiscal 2019 Model Project for Supporting Development of CO_2 Emission Reduction Plans to Achieve SBT" (sponsored by the Ministry of the Environment), and based on the research and advice of experts, we are formulating a highly feasible roadmap for reducing greenhouse gas emissions, incorporating new technologies, and are looking into measures and costs. To achieve our medium- and long-term targets, each year we set a single-year target and evaluate the results (progress) against the target (see pp.65). We also have been calculating greenhouse gas emissions across the entire value chain (Scope 3) for our business sites in Japan since FY2014 by dividing Scope 3 emissions into 15 categories, in accordance with the guidelines of the Ministry of the Environment. As for water risks, we analyze risk once a year. These are part of disaster/climate change risks, one of our company-wide risks, so we implement measures based on our business continuity plan (BCP), such as maintaining a proper level of inventory. In the future, we will also work to establish a collaborative relationship with our business partners, secure multiple suppliers, and consider the impact of floods/shortage of water due to climate change in our business partner selection process, etc.

Web See the CDP Climate Change response for more information on climate change risks and opportunities, greenhouse gas emissions, and more (CDP ID required).
https://www.cdp.net/en/saml/new

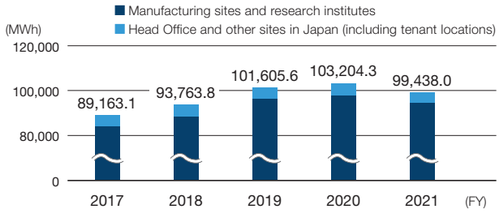
Greenhouse Gas Emissions (Scope 1+2)



Greenhouse gas emissions (Scopes 1 + 2) do not include CO_2 offset by voluntary credits (carbon neutral city gas purchased). If these voluntary credits are included, GHG emissions (Scopes 1+ 2) would be 23.0 kt-CO_2.

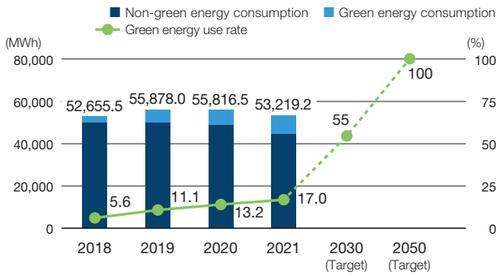
Web Greenhouse Gas Emissions across the Entire Value Chain (Scope 3)
https://sustainability.ono-pharma.com/en/themes/121

Energy Consumption



* Sites where data on greenhouse gas emissions and energy consumption were collected: Fujiyama Plant, Joto Pharmaceutical Product Development Center, Yamaguchi Plant (added from FY2018), Minase Research Institute, Fukui Research Institute, Tsukuba Research Institute, Head Office, sales offices and other offices, etc.

Electricity Consumption and Green Energy Utilization Rate*



* Green energy utilization rate: Green energy consumption / All electricity consumption

TOPICS Efforts to Introduce a Continuous Manufacturing System[1]

We are working on changing one of our manufacturing processes, wet granulation, from a batch method to a continuous method. This is expected to reduce the raw materials required for development by approximately 13%[2] by weight. In the future, we intend to further expand the scope of application of continuous manufacturing to achieve further reductions in raw materials and energy. This initiative is also positioned by TCFD analysis as one of the opportunities related to climate change.

1 "Continuous manufacturing system" is a manufacturing method in which raw materials are continuously fed into the manufacturing process and finished products are continuously taken out. Since it is automated by connecting compact equipment, it is expected to save energy and increase efficiency of manufacturing and resources compared to the batch system that is the mainstream in pharmaceutical manufacturing.
2 These figures show the raw material reduction when using a continuous system for wet granulation, one of the manufacturing, instead of a typical batch system.

Realization of a Water Recycling Society Toward Realization of a Water Recycling Society

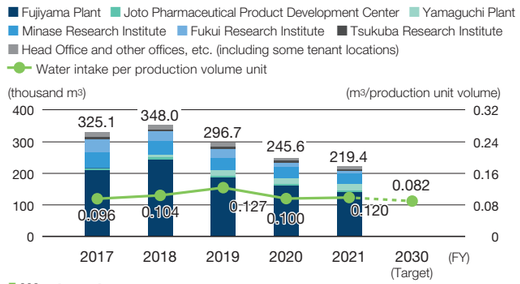
We are making efforts to create a water recycling society by establishing medium- and long-term targets (see p.65) to mitigate the load on limited water resources. Water risks and opportunities that are considered to have an impact on business are identified, analyzed, and evaluated primarily through surveys conducted by the Environmental Management Committee.
Water risk assessment at major sites that use large volumes of water (manufacturing sites and research institutes) is conducted using the WRI AQUEDUCT risk assessment tool of the World Resource Institute. As of the end of FY2021, none of our company's major sites engage in operations in areas categorized as being extremely high risk for water stress. Also, all major sites operate in areas where it is possible to use good quality fresh water as needed for business, so our business activities are not affected. ONO's rating increased from B in FY2018 to A minus in FY2019 and FY2020, and rose to the highest rating of A for FY2021 in the water security survey conducted by CDP of Britain.

Web Analysis and Evaluation of Water-related Risk and Opportunity
https://sustainability.ono-pharma.com/en/themes/123

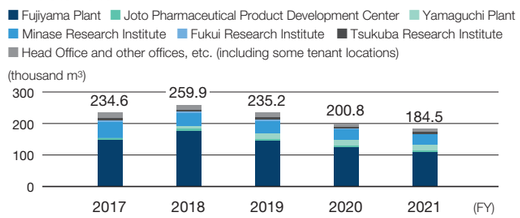
Efforts to Realize a Water Recycling Society

To reduce water consumption, we are reducing cooling water by adjusting the temperature setting of thermal drainage tanks at manufacturing sites, optimizing tank sterilization operations for pharmaceutical water, and not spraying water on air-cooled chillers or heat exchangers in laboratories. In addition, we are reducing water intake by adopting water-saving sanitary fixtures when expanding or renovating offices and renewing facilities.
The amount of water intake in FY2021 was 219.4 thousand m^3, achieving a reduction of 26.2 thousand m^3 compared to FY2020.

Water Intake (Water Resource Consumption) and Water Intake per Production Volume Unit



Wastewater



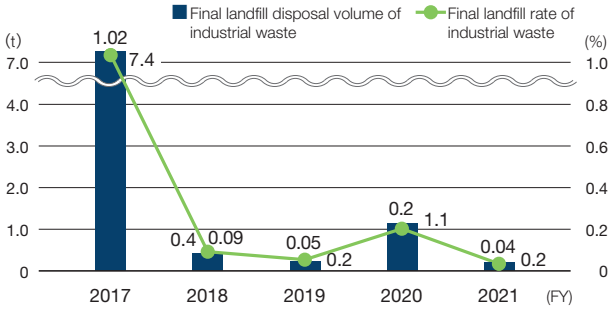
Realization of a Resource Recycling Society Toward Realization of a Resource Recycling Society

To continue our business activities while protecting the global environment, we are making company-wide efforts to realize a resource-recycling society, a key item in our medium- to long-term environmental vision.
The resource recycling subcommittee, which is under the Environmental Management Committee has promotion of the 4Rs (refuse, reduce, reuse and recycle) and selection of materials with reduced environmental impact, as its basic policies, and it promotes surveys of waste-producing and waste disposal processes, and the consideration and evaluation of measures in line with these policies.

Efforts toward the Realization of a Resource Recycling Society

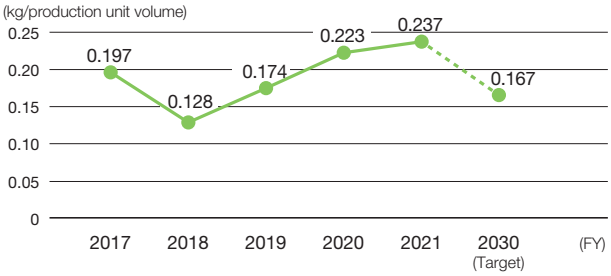
The entire company is working to reduce the generation of waste by, for example, reducing paper materials through the digitization of documents. Also, manufacturing sites and research institutes are converting waste paper and metal into valuable materials, and waste plastic into valuable materials or free materials. In addition to these efforts, our research institutes are also selling laboratory equipment that is no longer in use. We also recycle the residues from the intermediate treatment of industrial waste generated by our manufacturing sites and research institutes.
With regard to pharmaceuticals, we are promoting the reduction of environmental impact throughout the process from research to manufacturing, use, and disposal by simulating manufacturing processes, adopting a continuous manufacturing system, extending the period of use, and changing packaging materials and forms.

Final Landfill Disposal Volume and Final Landfill Disposal Rate of Industrial Waste



* Sites covered by this data: Fujiyama Plant, Joto Pharmaceutical Product Development Center, Yamaguchi Plant (Added from FY 2018), Minase Research Institute, Fukui Research Institute, Tsukuba Research Institute and Logistics centers (added from FY2021).
* Final industrial landfill disposal volume of industrial waste in FY2017 includes the amount of waste (5.8 tons) from renovation of the Joto Pharmaceutical Product Development Center.

Industrial Waste Volume per Production Volume Unit



* The industrial waste volume in FY2017 (25.64 tons) from renovation of the Joto Pharmaceutical Product Development Center was excluded from the calculation.

Biodiversity
Stance on Conserving Biodiversity

As a pharmaceutical company that handles various chemical substances and samples of human and animal origin (blood, tissue, cells, genes, etc.), we believe it is our responsibility to properly manage these substances and prevent air, water, and soil contamination. We also recognize that our business activities benefit from the global environment, and we place great importance on conserving biodiversity.
Based on this belief, we have established an action policy for conserving biodiversity.

Action policy on conserving biodiversity

- Recognizing the impact of our business activities on biodiversity, we take the conservation of biodiversity into consideration in our business activities.
- We comply with treaties, laws and regulations concerning biodiversity in each country and region.
- We appropriately use and manage living modified organisms and pathogens in accordance with relevant laws and regulations.
- We proactively communicate with internal and external stakeholders and promote biodiversity conservation.
- We enhance the awareness of our employees and promote activities to conserve biodiversity with the participation of all employees.

Key Initiatives for Biodiversity Conservation

Chemical substances are properly managed in accordance with the PRTR system of the Act on the Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof, and wastewater is managed in accordance with our own standards, which are stricter than related laws.
Also, we comply with internal rules and regulations established in accordance with the Act on the Conservation and Sustainable Use of Biological Diversity through Regulations on the Use of Living Modified Organisms (Cartagena Act) and the Act on the Prevention of Infectious Diseases and Medical Care for Patients with Infectious Diseases (Infectious Diseases Act), etc., regarding genetically modified organisms and pathogens used in drug discovery research and manufacturing activities, preventing their spread or leakage into the environment. In particular, the Fujiyama Plant, our main manufacturing site, employs Whole Effluent Toxicity (WTE) testing using biological responses to confirm that wastewater from the plant has no impact on aquatic organisms in rivers and the sea. In addition, the environmental impact of the active ingredients and metabolites of new drugs for which we are seeking regulatory approval is appropriately evaluated in accordance with the guidelines of each country.
Furthermore, employees at our manufacturing sites and research institutes regularly clean up the areas around their premises to contribute to the preservation of the surrounding environment and biodiversity, and to raise employee awareness. Also, in the past we participated in cleaning up around the 5th station at Mt. Fuji and cleaning up around the spring at Minase Shrine, “Rikyu-no-mizu,” which has been selected as one of the 100 best waters in Japan, but these have not been conducted since FY2020 due to the outbreak of COVID-19.

Web The details of our environmental initiatives and environmental data are on our sustainability web page.
https://sustainability.ono-pharma.com/en/themes/118